

ABSTRACT

A ferritic or martensitic stainless steel has the structure that Cu-enriched particles with concentration of C not less than 0.1 mass % or concentration of Sn and/or In not less than 10 mass % were dispersed in a matrix. Precipitation and dispersion of Cu-enriched particles is realized by aging the stainless steel at 500-900°C for 1 hour or longer on any stage after a hot-rolling step until a forming step to a final product. The ferritic stainless steel contains 0.01-1.0% C, Si up to 1.0%, Mn up to 1.0%, 15-30% Cr, Ni up to 6.0% and 0.5-6.0% Cu. The martensitic stainless steel contains 0.01-0.5% C, Si up to 1.0%, Mn up to 1.0%, 10-15% Cr, Ni up to 6.0% and 0.5-6.0% Cu. Since Cu-enriched particles are dispersed for improvement of machinability instead of addition of S, Pb, Bi or Se, the stainless steel is machined to an objective shape without any harmful influence on workability, corrosion-resistance and the environment.